

STUDIES IN DIOSCOREA, I:
A COLLECTION FROM BRITISH HONDURAS

BERNICE G. SCHUBERT¹

IN 1924, WHEN KNUTH PUBLISHED his monograph of the Dioscoreaceae, he maintained in the family nine genera and 654 species, of which 614 were members of the genus *Dioscorea*. It was not until about 20 years after the publication of Knuth's work that serious interest in *Dioscorea* extended beyond the purely botanical aspects or the cultivation of the few species used in tropical areas for food. However, with the discovery of the presence of steroidal sapogenins in the underground parts of many species of *Dioscorea*, there was a sudden realization of the great lack of adequate botanical collections and accurate biological data about the majority of species. Spurred on by the interests and requirements of chemists and pharmacologists, botanical collectors, under the auspices of both the federal government and private companies, concentrated great effort on the collection and study of native species of *Dioscorea* in many parts of the world. The botanical results of this sudden acquisition of both materials and data for study have been very rewarding and should, with sufficient time, provide a much better understanding of this interesting genus than has been possible previously.

The difficulties met in studying species of *Dioscorea* are to be expected in a genus composed almost entirely of dioecious twining plants with extensive, sometimes fragile, usually subterranean rhizomes or tubers. Collection of material is difficult because the stems are most often entangled with stems of other genera and are difficult to trace to the proper base; the stem may break off at the base or the rhizome itself may break while it is being dug. Plants of both sexes usually grow rather close together, but both sexes cannot always be found; as a result, species are often described from one sex only. Although it is possible to determine the relationship of a plant from flowers of only one sex (especially the staminate) there are at least several, if not many, examples of two species being described, one from staminate the other from pistillate material, which were, in fact, the same. In spite of these difficulties, however, many recent collections made with great skill and care (and including both

¹ My taxonomic studies on the genus *Dioscorea* were begun while I was botanist with the New Crops Research Branch, Agricultural Research Service, U. S. Department of Agriculture, at Beltsville, Maryland, and have been continued since my leaving there at the Arnold Arboretum of Harvard University. I am glad to be able to continue this work and acknowledge with gratitude the helpfulness and interest of my former and present colleagues.

The illustrations were drawn with great skill and care by Mrs. Regina O. Hughes, Crops Research Division, U. S. Department of Agriculture.

photographs and detailed notes) have helped immeasurably in clarifying old problems and in increasing our knowledge of the genus.

Among the collections which I have had an opportunity to study is one made in British Honduras and presented to the herbarium of the Royal Botanic Gardens, Kew, by Dr. S. S. Bampton. Although small, this collection is of such interest that it seems appropriate to discuss some of the significant numbers, to provide more complete descriptions for two previously inadequately known species, and to describe one which is new. I shall conclude the paper with a list of determinations of all the identifiable Bampton numbers in the hope that this may provide the basis for an accurate account of the species of *Dioscorea* in British Honduras.

I appreciate the interest and consideration of the officers of many institutions who have made available collections in their care for my study, either on loan or when I visited their herbaria. Full representation of any one species may be so inadequate in one herbarium that only a combined collection in a genus such as *Dioscorea* can help to give a clear understanding of the material. The institutions concerned are cited in the paper by the symbols given in *Index Herbariorum* (Lanjouw and Stafleu, Reg. Veg. 31. 1964).

- B Botanisches Museum, Berlin-Dahlem, Germany
 F Chicago Natural History Museum, Chicago, Illinois, U. S. A.
 GH Gray Herbarium of Harvard University, Cambridge, Massachusetts, U. S. A.
 K The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, Great Britain
 LE Herbarium of the Komarov Botanical Institute of the Academy of Sciences of the U. S. S. R.
 LL Lundell Herbarium, Texas Research Foundation, Renner, Texas, U. S. A.
 MEXU Herbario Nacional del Instituto de Biología, UNAM, Ciudad Universitaria, México, D. F., México
 MICH University Herbarium, University of Michigan, Ann Arbor, Michigan, U. S. A.
 MO Missouri Botanical Garden, St. Louis, Missouri, U. S. A.
 NA U. S. National Arboretum, Washington, D. C., U. S. A.
 NY New York Botanical Garden, Bronx Park, New York, U. S. A.
 US Department of Botany, U. S. National Museum, Smithsonian Institution, Washington, D. C., U. S. A.

Dioscorea hondurensis Knuth, Repert. Sp. Nov. 38: 120. 1935. Holotype, Peck 549 ♀ (B); isotypes (GH, K). FIGS. 1-3.

D. belizensis Lundell, Contr. Univ. Mich. Herb. 6: 5. 1941. Holotype, Gentle 2998 ♂ (MICH); isotypes (F, GH, US).

D. tabascan Matuda, Bol. Soc. Bot. Méx. 21: 1. 2 figs. 1957. Holotype, Gilly, Hernández & Berlin 44a ♂ (US); photo. and fragment (MEXU).

Dextrorse vine. Rhizome conical at apex, becoming horizontal about 3 dm. below surface, cylindrical, little branched, with creamy to yellow or almost orange flesh, 1–4 m. long, 1–5 cm. in diameter, 5.9–65.9 kg. in weight. Stem stout, reddish brown (in age becoming dark brown or gray at base, the bark sloughing off), cylindrical, striate, somewhat pilose or with only glandular trichome bases remaining, to 5 mm. in diameter. Leaves alternate, mostly coriaceous, cordate or ovate to ovate-suborbicular, abruptly acuminate into a short-attenuate tip, nearly truncate at base or more often with a rather deep inverted U-shaped to inverted V-shaped sinus, or sinus very narrow and the basal lobes overlapping; 9-nerved, the two outer nerves bifurcate, glabrous above with veins impressed, below with veins prominent and abundantly pilose with multicellular, branched or fasciculate trichomes (0.6–1 mm. long), gland-dotted throughout, to 26 cm. long, 23 cm. broad; petioles slightly winged above with decurrent leaf tissue, sulcate, somewhat angulate, striate, swollen at apex and base (in age becoming contorted at base), $\frac{1}{3}$ to scarcely $\frac{1}{2}$ length of leaf (3–10.5 cm.). Inflorescence of ♂ plant an axillary, solitary panicle of racemes up to 1.5 m. long, rachis essentially glabrous, angulate, minutely serrulate-alate on the angles, secondary rachises similar; flowers solitary, bibracteate, pedicellate, the outer bract ovate-acuminate, to 2 mm. long, 1.5 mm. wide, the inner ovate, abruptly attenuate, 1.5 mm. long, 1 mm. wide, pedicels 1.5 mm. long, scarcely differentiated from the 1.5–2 mm. long perianth tube; tepals fleshy to papyraceous (in age), ovate-obtuse, ca. 1.5 mm. long and wide, narrowed to a claw 0.8 mm. wide at base; stamens 6, introrse, inserted at base of tube and slightly exceeding it in length, becoming conspicuous as tepals become reflexed, 0.5–0.6 mm. long; styler rudiment central, 3-parted, rather conspicuous, to 0.5 mm. high. Inflorescence of ♀ plant a solitary, axillary, densely flowered raceme to 4.5 dm. long, rachis gland dotted, angulate, striate, essentially glabrous; flowers bibracteate, bracts gland dotted, the outer ovate-attenuate, 3 mm. long, 1.5 mm. wide, inner ovate-acuminate, 2 mm. long, 1 mm. wide; tepals fleshy, somewhat gland dotted, ovate-obtuse, early reflexed, 2.5 mm. long, 1.5–2 mm. wide, tube to 0.6 mm. long; staminodia 6, inserted at base of tube, introrse and somewhat antheriferous; styles 3, fused below, becoming distinct and bifid above with the stigmatic surface extrorse; ovary (excluding neck) to 7 mm. long. Capsule broadest above the basal third, its wings obtusely oblong, surface glabrous and remotely gland dotted at maturity, 4.8–5.5 cm. wide, 3.6–4 cm. high, on a pedicel 6 mm. long; seeds suborbicular, alate throughout, to 2.2 cm. long, 1.8 cm. wide (including wing).

DISTRIBUTION: Southern Mexico (Tabasco), British Honduras, Guatemala [Costa Rica, where probably cultivated] to Panama.

Mexico. Tabasco: between the Escuela Agricola and Cuevas de Cocomá, Teapa, Gilly, Hernández & Berlin 44a ♂ (MEXU, US); between Escuela Agricola

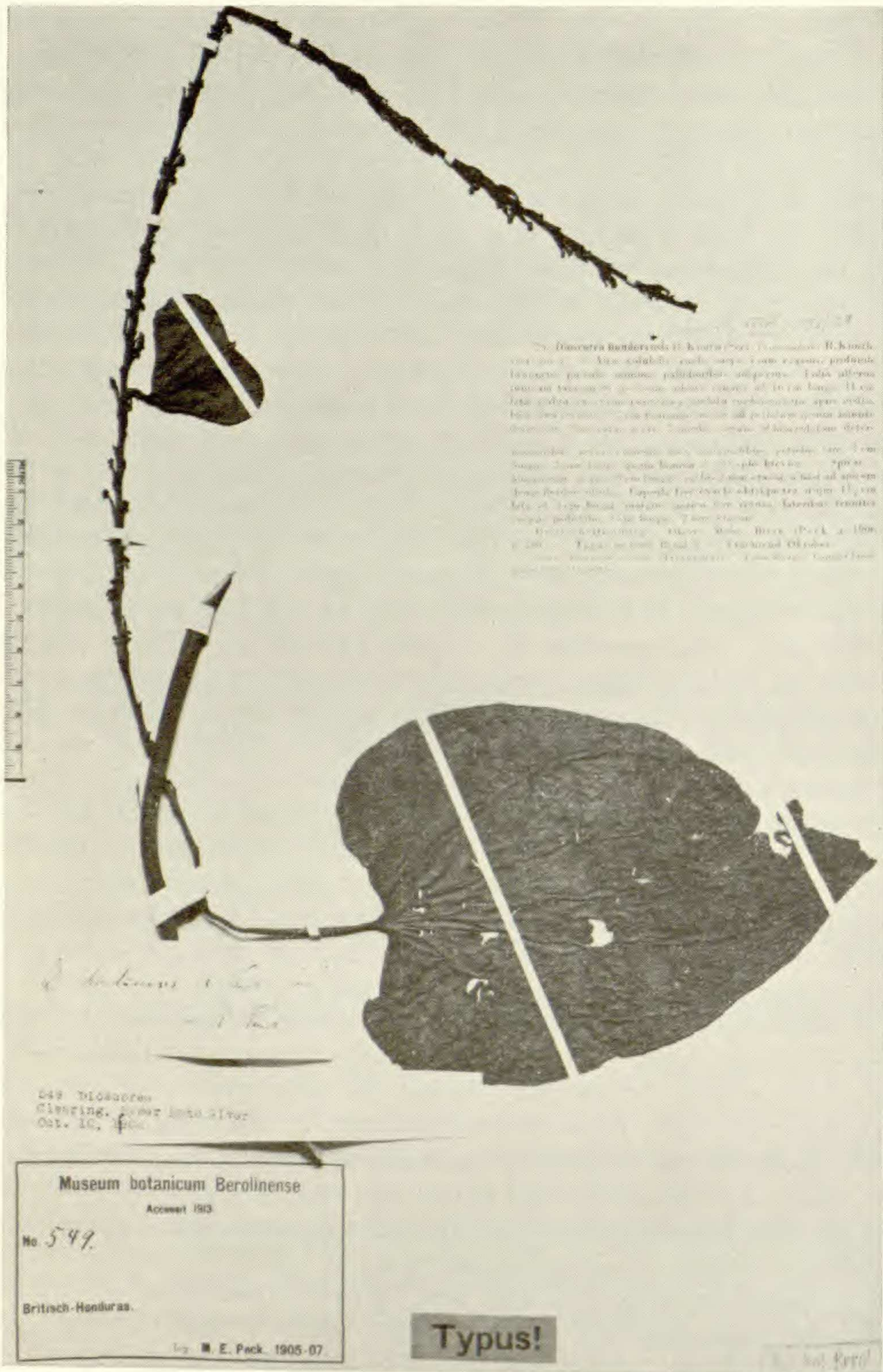


FIG. 1. *Dioscorea hondurensis* Knuth. Photograph of type (B).

and Gruta de Cocomá, along trail to Gruta, *Gilly, Hernández & Berlin 7129* ♂ (NA). **British Honduras.** Stann Creek District, in acahual, Carib Reserve, *Gentle 2998* ♂ (F, GH, MICH, US). Toledo District, Monkey River, *Gentle 3728* ♂ (F, GH). Punta Gorda, five-year old *Pinus caribaea* plantation at Machaca Forest Station, alt. 100 ft., *Bampton 22* [sterile] (κ). Upper Moho River,

Peck 549 ♀ (B, GH, K). **Guatemala.** Dept. Alta Verapaz: Panzas, alt. \pm 400 ft., *Gentry 12468* [sterile] (NA); 4–6 miles west of Panzas, alt. \pm 500 ft., *Gentry 12476, 12477* [sterile] (NA); 12 miles west of Estor, alt. \pm 200 ft., *Gentry 12475* [sterile] (NA). Dept. Izabal: brushy slope, alt. 75–225 m., *Standley 24112* [sterile] (GH, NY, US). **Honduras.** Dept. Atlantida: wet forest, Lancetilla Valley, near Tela, alt. 20–600 m., *Standley 53857* ♀ (F, US); idem, *Standley 55218* ♂ (F, US); Lancetilla Field Station, alt. \pm 100 ft., reddish porous clay soil, *Gentry 12493* [sterile] (NA); about 3 miles w. of Ceiba, in sandy loam, alt. 20 ft., *Gentry 12502* [sterile] (NA). **Costa Rica** [probably cultivated]. Prov. Alajuela: llanuras de San Carlos, alt. 500 ft. (received from Experimental Plantations Inc., Chicacao, Guatemala, where probably also cultivated), *Krukoff 2012* (F [sterile], US [1 coll. sterile, 2024529 ♀]). **Panama.** Canal Zone: Barro Colorado Island, *Silvestre Aviles 12* ♀ (F).

In 1935 Knuth described *Dioscorea hondurensis*, of British Honduras, from pistillate material only (FIG. 1), assigning it to a new section, TRIANGULARES. He did not indicate to which subgenus these new taxa might

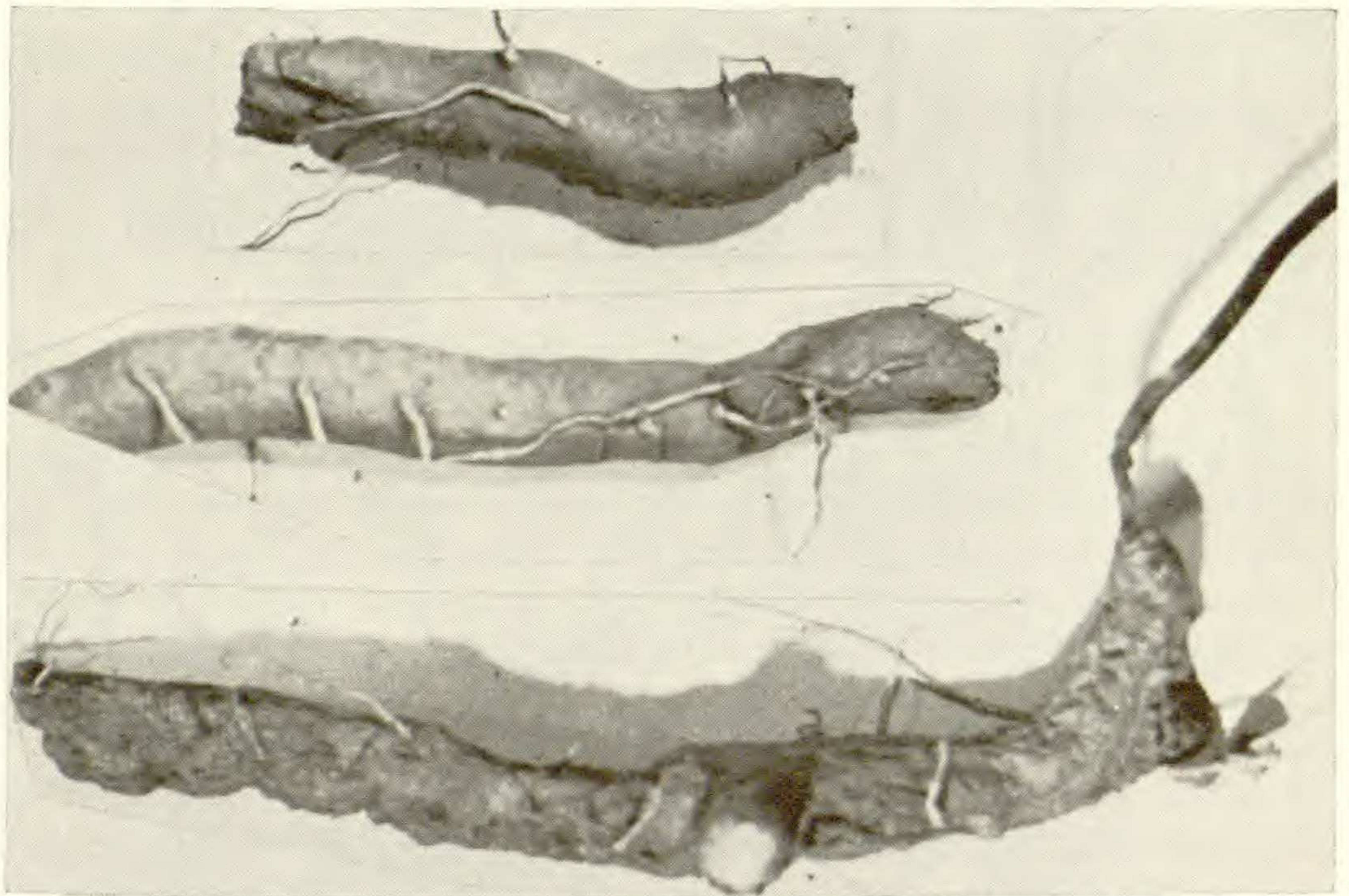


FIG. 2. *Dioscorea hondurensis* Knuth. Portions of rhizomes, the lowermost showing base of leafy stem emerging, from *Bampton 22*, \times 3/8.

be referred. Morton, in 1936, suggested that the section might "belong to *Eudioscorea*," but material was not available to confirm this. Recent examination of the holotype from Berlin and the isotype from the Gray Herbarium confirms Morton's suggestion. From 1935 until now no staminate material has been associated with Knuth's species. However, the pistillate flowers bear six equal staminodia indicating that the staminate flowers probably have six equal stamens.

In 1941, Lundell described *Dioscorea belizensis*, of British Honduras, from staminate material, suggesting no relationship, but describing the



FIG. 3. a-j, *Dioscorea hondurensis* Knuth. a, portion of stem with leaf and elongate staminate inflorescence, from *Gentle 2998* (US 1807877), $\times 1/3$; b, portion of lower leaf surface to show venation and pubescence, from *Gentle 2998* (US 1808657), \times ca. $1/3$; c, solitary staminate flower and subtending bracts, from same specimen, $\times 3$; d, staminate flower opened to show the 6 introrse stamens and 3-parted rudimentary style, from same specimen, $\times 3$; e,

material very fully. The species was characterized by its large leaves pubescent below, and by its extremely long (to 150 cm.), branched, staminate inflorescences. The staminate flowers are solitary, dark red, and with six stamens. In 1952, Morton identified *Krukoff 2012* from Costa Rica (where it was probably cultivated) as *D. belizensis*. This was the first material other than the type, and the first pistillate collection, assigned to the species.

In 1957, Matuda described *Dioscorea tabascanana*, from the state of Tabasco, Mexico, from staminate material. This species was also characterized by its large leaves pubescent below, and its very long (60–90 cm.) staminate inflorescence. The staminate flowers were said to be castaneous and with six stamens (which were incorrectly observed to be extrorse rather than introrse). Matuda assigned his new species to subgenus EUDIOSCOREA, § MACROGYNODIUM, distinguishing it from the other members by its solitary flowers and extrorse stamens. The form of the inflorescence cannot be reconciled, however, in a section characterized by densely flowered scorpioid or cymosulous branchlets in a compound raceme (§ MACROGYNODIUM).

The chief difference between the staminate flowers in the type collection of *Dioscorea belizensis* and those of the type of *D. tabascanana* is in the texture of the tepals. The tepals of *D. belizensis* are thick, fleshy, and with glands only remotely visible; those of *D. tabascanana* are papyriforous and abundantly gland dotted. This variation seems to me to be a function of age rather than a morphological differentiation. With more collections the problem can be clarified.

From close and careful examination of the type material of *Dioscorea hondurensis* Knuth, *D. belizensis* Lundell, and *D. tabascanana* Matuda, I have come to the conclusion that they are all one species (FIG. 3). There is not even sufficient variation in the collections to distinguish geographical varieties. The name to be maintained, therefore, is the oldest one, *Dioscorea hondurensis* Knuth. For the present it seems expedient to maintain also Knuth's § TRIANGULARES, but I think it will be possible to show, after examination of more material of other species, that *D. hondurensis* is a perfectly characteristic member of § SARCANTHA Uline, up to now thought to be limited to South America.

In the thirty years it has taken to associate staminate with pistillate elements of *Dioscorea hondurensis* a good representation of material from a rather wide geographical range has accumulated. It may be seen in the case of *D. hondurensis*, as will be shown for other species also, that with

staminate flower opened to show the 6 introrse stamens and 3-parted rudimentary style, $\times 3$, from *Gilly, Hernández & Berlin 44a* (US), holotype of *D. tabascanana*; f, portion of staminate inflorescence to show solitary, pedicellate character of flowers, $\times 3$, from *Gentle 2998* (US 1808657); g, portion of leafy stem and pistillate inflorescence with 1 mature capsule, $\times 1/3$, from *M. E. Peck 549* (B); h, portion of pistillate inflorescence, $\times 2$, from same specimen; i, pistillate flower to show 3 stigmas and 6 staminodia, $\times 3$, from same specimen; j, mature seed, $\times 3$, from *Krukoff 2012* (US 2024529).

intensive collecting many species formerly considered very local are, in fact, rather widespread. Although some material of *D. hondurensis* is sterile, it can be placed with relatively little doubt because of the characteristic pubescence on the lower leaf surface (FIG. 3b). Such pubescence is not known to occur on plants of other species with leaves of similar size, texture, and outline.

When collectors have given notes on underground parts of *Dioscorea hondurensis* their information is remarkably uniform. For photographs (FIG. 2) indicating the general aspect of the rhizomes I am indebted to Dr. Bampton. Sketches sent to me by Dr. Gentry are similar.

Dioscorea (§ *Higinbothamia*) *gaumeri* Knuth, Notizbl. Bot. Gart. Berlin 7: 199. 1917 [type cited from Colombia]; Pflanzenreich IV. 43(heft 87): 122. 1924 [same type cited from Yucatan]. Holotype, Gaumer, Pl. Yucat., sub *Higinbothamia* ♀! (B). FIGS. 4, 5a-d.

Higinbothamia synandra Uline, Publ. Field Mus. Bot. 1: 415. pl. 22. 1899. Lectotype, Gaumer 794 p.p. ♂ (F 36597).

Dioscorea synandra (Uline) Standl. Publ. Field Mus. Bot. 3: 231. 1930, non *Dioscorea synandra* Uline, Nat. Pflanzenfam. Nachträge zu II: 86. 1899, *nomen nudum*; Uline ex Knuth, Pflanzenreich IV. 43(heft 87): 219. 1924. Lectotype to be chosen from among the syntypes, since Knuth cited both a ♂ and a ♀ type and neither collection has been examined.

Sinistrorse vine.² Rhizome more or less cylindrical ca. 3½ cm. long and 1 cm. in diameter, becoming subconical at apex [not branched in photograph of specimen seen], growing near surface, flesh whitish brown. Stem

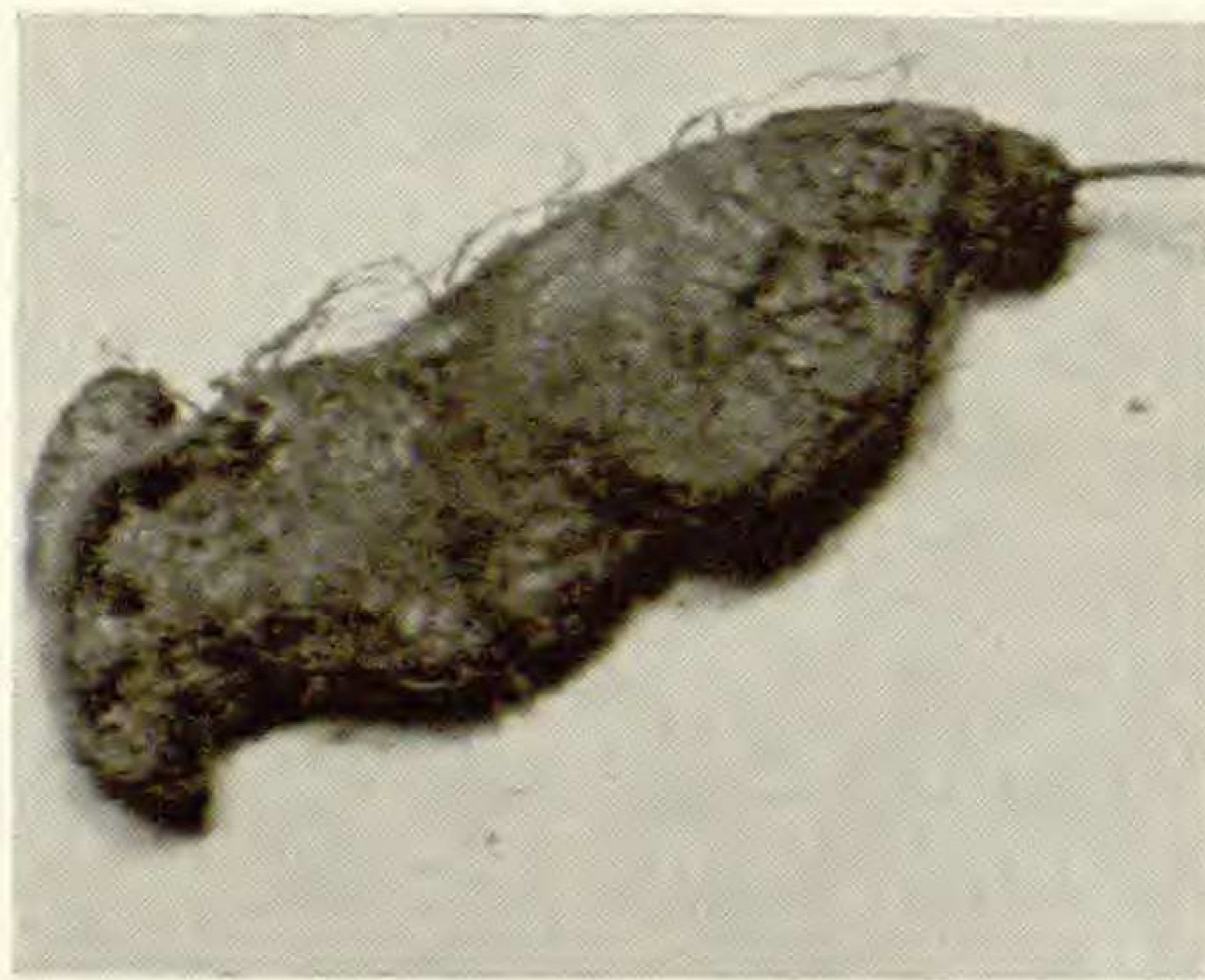


FIG. 4. *Dioscorea gaumeri* Knuth. Portion of rhizome with base of emerging stem, from Bampton 10, × 1/2 (photo. Bampton).

slender, not ridged when fresh, becoming finely ridged and grooved, to 10 feet or more long (or high) [fide Bampton], tawny to yellowish, glabrous, 1-1.5 mm. in diameter. Leaves alternate, thin, glabrous, cordate-ovate, narrowed to a long-attenuate apex, basal sinus broad, inverted V- or U-shaped, 5-11.5 cm. long, 3.5-11 cm. wide, 5-nerved, the two outer

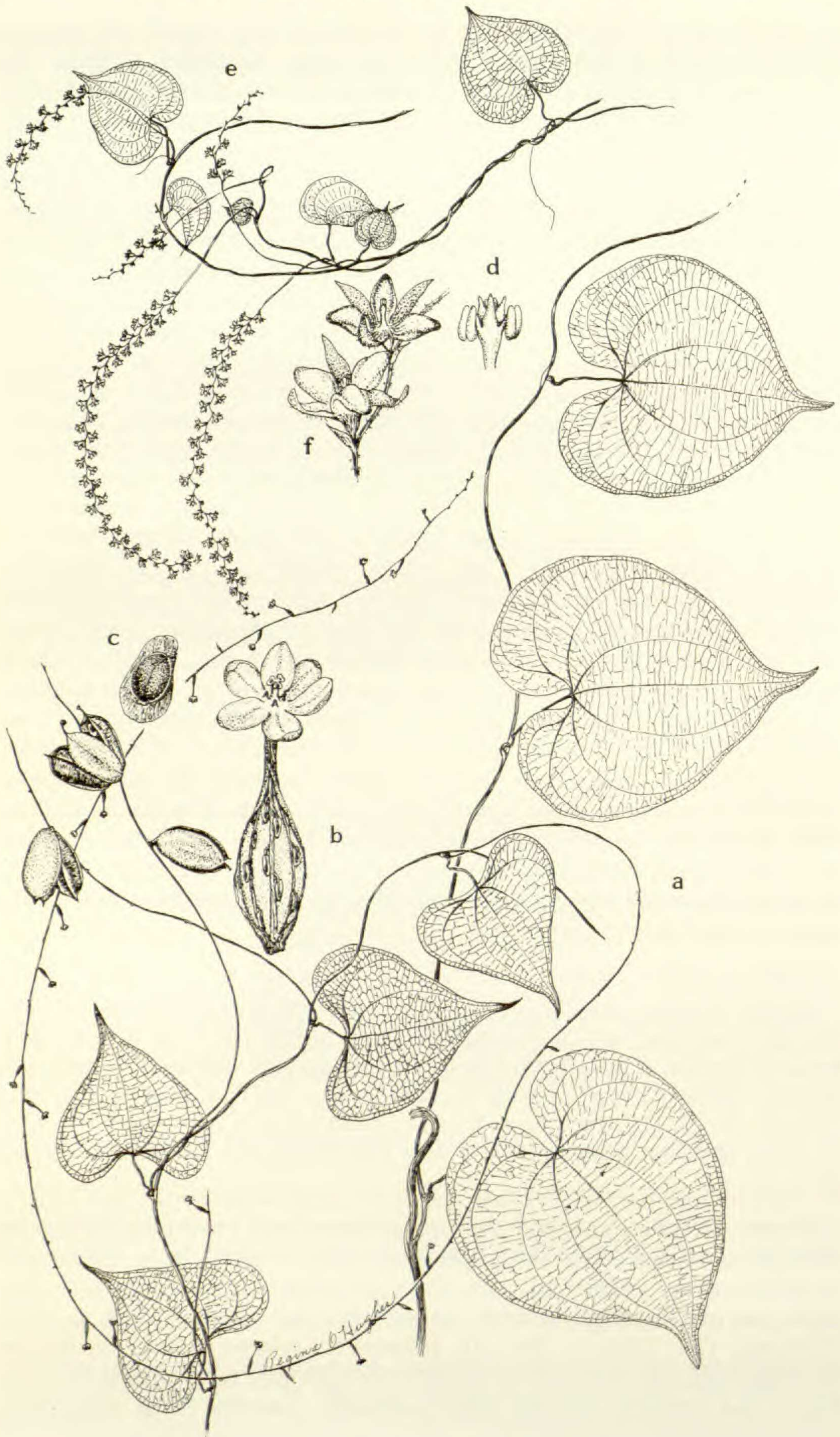
² *Dioscorea gaumeri* was described as dextrorse by Knuth, but observations on material at hand agree with those of Uline and Bampton that the plants are sinistrorse.

nerves bifurcate; petioles sulcate on adaxial surface, ridged and grooved otherwise, glabrous throughout, 1.5–3 cm. long, contorted at base. Inflorescence of ♂ plant composed of solitary axillary racemes or a basally branched panicle of racemes 10–20 cm. long, rachis minutely and often densely serrulate-alate on the fine ridges; flowers usually solitary (but sometimes two on a short peduncle (*Lundell & Lundell 7918*), bracteate, pedicellate, each (if flowers solitary) subtended by two lance- to oblong-attenuate bracts moderately to densely papillate and somewhat glandular on the adaxial surface, to about 1.5 mm. long and 0.5 mm. wide (if 2 flowers borne together then each unibracteate); pedicels also serrulate-papillate, glandular and ± angulate, to about 3 mm. long; the 6 tepals purple even when fresh [Bampton], free from slightly above base, in 2 series, elliptic-ovate, acutish to rounded at apex, the inner 3 mm. long, 1.5–2 mm. wide, the outer similar or slightly longer and narrower, but not sharply differentiated; stamens 3, filaments fused, anthers extrorse at the apex of the staminal column (to 1 mm. high), staminodia alternating with stamens in an inner whorl and usually at least slightly exceeding them. Inflorescence of ♀ plant lax, elongate, simple, axillary and usually solitary racemes, often becoming more than 7 dm. long; rachis ± angulate, serrulate-papillate to remotely alate; flowers solitary, bibracteate, bracts papillate-granular, the inner ca. 1.6 mm. long, the outer a little longer, lance-attenuate from a clasping base; tube very shallow, ca. 1 mm., tepals 6, the 3 inner ovate-subacuminate, the 3 outer ovate-obtuse, or all subacute, essentially equal, somewhat gland dotted on adaxial surface, papillate all over abaxial surface and somewhat puberulent, ca. 3 mm. long and 2 mm. wide; staminodia 3, borne at base of stylar column opposite the outer tepals; styles fused, column gland dotted, ca. 1 mm. long, stigmas 3, slightly bifid, outwardly curved; ovary, excluding neck ca. 6 mm. long. Capsule on a short stout pedicel, exalate, oblong to narrowly elliptical, tapering to acutish base and apex, 3-locular, each locule [3-]4-seeded; seeds 6 mm. long, 2.5 mm. wide (including wing), alate all around.

DISTRIBUTION: Yucatan and British Honduras.

Mexico. Yucatan: Kaua road, Chichen Itza, *Lundell & Lundell 7918* ♂ (US); Merida-Uxmal road, km. 40, *Lundell & Lundell 8092* ♂ (GH, LL, US). Without locality, *Gaumer & sons 1580* ♂ & ♀ (G, LE, MO, US). **British Honduras.** San Andres, *Gentle 1084* ♀ [3 seeds in each locule] (GH); Pembroke Hall near Corozal, alt. 100 ft., *Bampton 14* ♀ (K); 3 miles south of Maskall, *O'Neill 8385* ♂ (US); limestone outcrop on Mountain Pine Ridge near Augustine, *Bampton 10* ♂ (K).

It may be seen from both the nomenclatural and taxonomic history of *Dioscorea gaumeri* that much confusion has resulted from inadequate material, mixed collections, and some misjudgements. Inadequate material, as well as misjudgement, presumably led Knuth (1917, p. 199; 1924, pp. 120, 122) to place *D. gaumeri* in subgenus HELMIA, section MONADELPHA. Morton (1936, p. 244) was the first to recognize the confusion and correctly identify *Higinbothamia synandra* Uline (*Dioscorea*



synandra (Uline) Standl., not Knuth) with *D. gaumeri*, which he then reassigned to subgenus EUDIOSCOREA (now, according to the Code, to be known as subg. DIOSCOREA). At the same time Morton united the genus *Higinbothamia* with *Dioscorea* as a section, under the correct subgenus. This seems to be a proper disposition of *Higinbothamia*, although some few botanists still propose to maintain it as a distinct genus. The larger number of ovules in each locule of the ovary is scarcely a character of sufficient significance for generic distinction (particularly since the number varies from three to four) when all characters of flowers and fruit are so clearly those of *Dioscorea*.

After Uline's publication of *Higinbothamia synandra* in 1899, it was discovered that several Gaumer collections were mixed and some of the numbers cited as representing *Higinbothamia synandra* actually represented at least two other species. Knuth noted (1924, p. 327) that Gaumer 794 the "staminate type" was a mixed collection and illustrated portions of both elements of the collection in his fig. 63 (p. 326). Standley, in his *Flora of Yucatan* (1930, p. 158), discussed the Gaumer collections and some of the difficulty in organizing them. Surely the difficulties must have been greater with specimens of *Dioscorea* than with material of many other genera because *Dioscorea* species cannot be easily distinguished by superficial characters, and the dioecism of the plants leaves greater margin for error. Caution should be used in annotating any collection bearing the same number as that cited here.

Although Uline expressed some uncertainty about which were generic and which specific characters when he described the genus *Higinbothamia* and its one species, *H. synandra*, it now seems reasonably clear that possession of a staminal column is a sectional character, the position of stamens on it and their relation to the staminodia are specific, as are the shape and differentiation of the tepals. On the basis of these conclusions the material collected by Dr. Bampton as his number 25 seems to be a new species in section *Higinbothamia*. It may be distinguished from *Dioscorea gaumeri* by the characters noted in the key which follows.

- Leaves with broad basal sinus, inflorescence a simple raceme, flowers pedicellate; tepals all alike, obtuse; stamens exceeded by staminodia. *Dioscorea gaumeri*.

 Leaves with narrow basal sinus or the lobes overlapping; inflorescence a somewhat zigzag raceme, flowers almost sessile; tepals differentiated into outer

FIG. 5. a-d, *Dioscorea gaumeri* Knuth. (a-c from Bampton 14 (κ); d from Lundell & Lundell 8092 (GH).) a, portion of ♀ plant with both young flowers and mature capsules, × 1/3; b, pistillate flower and almost mature ovary opened to show loculi and seeds, × 3; c, mature seed, × 3; d, portion of androecium to show stamens and staminodia, × 3.

FIG. 5. e and f, *Dioscorea sandwithii* Schubert, from cultivated material grown from rhizome of Bampton 25 (κ); e, leafy stem and staminate inflorescences, × 1/3; f, portion of staminate inflorescence to show differentiation of 2 series of tepals and androecial structure, × 3.

and inner series, acuminate; stamens exceeding staminodia.
 *Dioscorea sandwithii*.

Dioscorea sandwithii Schubert, sp. nov.

FIG. 5e and f.

Volubilis, sinistrorsum torta, caulibus angulatis subtiliter canaliculatis papillatis canis vel flaventibus; foliis basi sinu angusto vel lobis attingentibus, 9-nerviis, nervis extremis bifurcatis. Inflorescentiae ♂ axillares solitares racemosi, rachibus racemorum angulatim flexuosis papillato-serrulatis vix alatis; floribus solitariis bibracteatis pedicellatis, bracteis glabris sparsim glandularibus; pedicellis ca. 0.8 mm. longis, tubo perianthii similibus ± equilongis. Perianthium 6-partitum, carnosum atro-purpureum, segmentis exterioribus lanceo-obtusis vel -acutis, interioribus ovato-obtusis. Stamina 3, filamentis in columnam centram fuis, antheris extrorsis apicalibus, staminodiis 3, cum antheris longioribus alternantibus. Planta ♀ incognita.

Sinistrorse vine, rhizome similar to that of *D. gaumeri*, stem angulate, finely grooved and papillate, grayish to yellowish, 1.5 mm. in diameter. Leaves alternate, almost orbicular, apex narrowly acuminate, basal sinus narrow or the lobes overlapping, 11 (or more) cm. long and 9 cm. wide, 9-nerved, the two outermost nerves bifurcate, surfaces essentially glabrous, somewhat papillate below; petioles swollen when fresh "becoming 3-4 times diameter of stem" to 4 mm. in diameter (when dry), 4-8 cm. long, sulcate, finely ridged and grooved and papillate-serrulate. Inflorescences of ♂ plant axillary, solitary, zigzag racemes to 1.5 dm. long, rachis angulate, papillate-serrulate, remotely alate; flowers solitary, bibracteate, pedicellate, bracts glabrous and sparsely gland dotted, outer bract lanceovate, acute, 1.5 mm. long, 0.5 mm. wide, inner bract lanceolate, ca. 1 mm. long and 0.4 mm. wide; pedicels ca. 0.8 mm. long, not especially distinguished from the 1 mm. long perianth tube; corolla of 2 whorls of ± fleshy dark-purple tepals, the outer lance-obtuse to -acute, to 3.5 mm. long, 1.3 mm. wide, the inner ovate-obtuse, 3 mm. long and 1.5 mm. wide. Stamens 3, the filaments fused in a central column 1 mm. long, the extrorse anthers apical, staminodia 3, in a whorl within and between the stamens, usually a little shorter than the anthers but often folded over and seeming much exceeded by them. No ♀ plants known.

HOLOTYPE: rocky limestone hill, Gracie Rock near Belize, British Honduras, February 23, 1959, *Bampton 25* ♂ (K). CULTIVATED: Royal Bot. Gard., Kew, December 16, 1959, from *Bampton 25* ♂ (A).

It seems appropriate to name this new species of *Dioscorea* for the late NOEL YVRI SANDWITH (8 September 1901-7 May 1965), through whose interest the collection of Dr. Bampton came to me for study. Mr. Sandwith's interest in and knowledge of tropical American plants and his generous helpfulness to all American botanists was great indeed. His sudden death means the loss of a good friend to many of us and creates a great gap in the understanding of tropical American botany neither soon nor easily filled.

DIOSCOREAE BAMPTONIANAE

BRITISH HONDURAS — 1959

Collection number	Species
1.	<i>Dioscorea bartlettii</i> Morton
1 A.	<i>Dioscorea bartlettii</i> Morton
2.	<i>Dioscorea</i> cf. <i>bernoulliana</i> Prain & Burkill
4.	<i>Dioscorea spiculiflora</i> Hemsley
5.	<i>Dioscorea alata</i> L.
8.	<i>Dioscorea convolvulacea</i> Cham. & Schlecht.
9.	<i>Dioscorea pilosiuscula</i> Bertero ex Spreng. vel aff.
10.	<i>Dioscorea gaumeri</i> Knuth
11.	<i>Dioscorea spiculiflora</i> Hemsley
12.	<i>Dioscorea densiflora</i> Hemsley
12 A.	<i>Dioscorea densiflora</i> Hemsley
13.	<i>Dioscorea floribunda</i> Mart. & Gal.
14.	<i>Dioscorea gaumeri</i> Knuth
15.	<i>Dioscorea spiculiflora</i> Hemsley [very immature]
16.	<i>Dioscorea spiculiflora</i> Hemsley
17.	<i>Dioscorea</i> cf. <i>cayenensis</i> Lam. [sterile]
19.	not identifiable
20.	<i>Dioscorea pilosiuscula</i> Bertero ex Spreng.
21.	<i>Dioscorea composita</i> Hemsley
22.	<i>Dioscorea hondurensis</i> Knuth
23.	<i>Dioscorea convolvulacea</i> Cham. & Schlecht. var. <i>glabra</i> (Hemsl.) Uline
25.	<i>Dioscorea sandwithii</i> Schubert
26.	<i>Dioscorea convolvulacea</i> Cham. & Schlecht. var. <i>glabra</i> (Hemsl.) Uline
27.	<i>Dioscorea floribunda</i> Mart. & Gal.
30.	<i>Dioscorea</i> sp.
s.n.	<i>Dioscorea</i> sp.